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REMARKS

Claims 1 through 16 and new Claims 17 through 20 are pending in the application. Claim 8 has been amended to recite the absence of heat stabilizers. Claims 12 through 15, directed to non-elected aspects of the invention, have been withdrawn.

Claims 17 through 20 have been added to complete the record for examination and to highlight advantageous embodiments of the invention.

Claims 17 and 18 have been added to emphasize the beneficial yellowness values exhibited by embodiments of the invention incorporating regrind. More specifically, Claim 17 recites that the films of the invention containing up to 50 weight percent regrind can exhibit yellowness values of 20 or less, for films having thicknesses of up to 50 microns. Claim 18 recites that the films of the invention containing up to 50 weight percent regrind can exhibit yellowness values of 45 or less, for films having thicknesses of from 50 to 250 microns. Support for Claims 17 and 18 can be found in the application as filed, for example on Page 3, lines 3 through 6; Page 6, lines 1 through 3 and Page 12, lines 6 through 9.

Claim 19 has been added to highlight specific advantageous embodiments of the invention exhibiting a 15 to 20% reduction in luminous transmittance in comparison to comparable films having the same thickness and lower longitudinal orientation. Support for Claim 19 can be found in the application as filed, for example on [Page 11, line 27] through Page 12, line 1. *new not*

Claim 20 has been added to emphasize advantageous embodiments of the invention exhibiting good mechanical properties, such as a modulus of elasticity in the machine direction of at least 3300 N/mm<sup>2</sup> and in the transverse direction of greater than 170

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N/mm<sup>2</sup>; tear strengths in the machine direction of greater than or equal to 120 N/mm<sup>2</sup> and in the transverse direction of greater than or equal to 170 N/mm<sup>2</sup>; and elongations at break of greater than or equal to 120 % in the machine direction and greater than or equal to 50% in the transverse direction, such properties being provided in the absence of heat stabilizers. Support for Claim 20 can be found in the Application as filed, for example on Page 3, lines 8 through 11.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

Double Patenting Rejection

Claims 1 through 9 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting in light of copending application, US 6,521,351 B2 to Murschall et al. Solely to advance prosecution of the case and without addressing the merits of the rejection, Applicants will submit a terminal disclaimer upon indication of allowable subject matter, thereby obviating this rejection.

Rejection Under 35 USC § 112

Claim 16 stands rejected under 35 USC 112, first paragraph over the term "further comprising reground." Applicants respectfully submit that the Application as filed notes on Page 3, starting at line 15: "The novel film should moreover be recyclable ..." and further that "[T]his object is achieved" by the films of the invention. The Application as filed further states on Page 4, starting at line 6, that the crystallizable thermoplastic may be "a crystallizable recycled material." In addition, the Application as filed on Page 6, beginning on line 1 notes that "[i]t is ... surprising that ... material produced while film production is running can be ... reused as reground." Consequently, Applicants respectfully

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submit that the specification conveys with reasonable clarity to those skilled in the art that Applicants were in possession of the claimed invention. Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejection Under 35 USC § 103

The Office Action indicates that Claims 1 through 5 and 8 through 11 stand rejected under 35 USC 103(a) as unpatentable over United States Patent No. 4,933,043 to Kim, as previously stated in the Office Action submitted on November 27, 2002. Applicants respectfully submit that there has been a typographical error within the outstanding action, and that the Kim patent referenced within the Office Action of November 27, 2002, is United States Patent No. 5,660,931. The patent number cited within the Office Action, United States Patent No. ~~4,933,043~~, is to Instance. (Out of an abundance of caution, Applicants will provide distinguishing remarks directed to both Kim and Instance.)

Claim 6 is rejected as unpatentable over Kim in view of United States Patent No. 4,384,040 to von Meer. Claim 7 is rejected as unpatentable over Kim in view of United States Patent No. 6,106,924 in view of Yamazaki.

It may be useful to consider the invention as recited in the claims before addressing the merits of the rejection. The claims recite opaque, white films with a thickness of from 10 to 500  $\mu$ m. The recited films are formed from a crystallizable thermoplastic which consists essentially of polyester, along with barium sulfate and at least one optical brightener. The film further includes a functional coating having a thickness of from 5 to 10 nm. Surprisingly, the luminous transmittance of the claimed films film is reduced when the longitudinal stretch ratio is increased for a film of the same thickness.

Applicants have determined a beneficial combination of a particular pigment, i.e. barium sulfate, optical brightener, and functional coatings that provide a highly beneficial

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balance of properties. More specifically, the opaque, white films of the invention provide good mechanical properties and good optical properties, as well as a range of functionalities, such as sealability, printability, and the like.

The good optical and mechanical properties provided by the films of the invention are altogether surprising, particularly in the recited absence of heat stabilizers. The films of the invention generally exhibit a modulus of elasticity in the machine direction of at least 3300 N/mm<sup>2</sup> and in the transverse direction of greater than 170 N/mm<sup>2</sup>; tear strengths in the machine direction of greater than or equal to 120 N/mm<sup>2</sup> and in the transverse direction of greater than or equal to 170 N/mm<sup>2</sup>; and elongations at break of greater than or equal to 120 % in the machine direction and greater than or equal to 50 % in the transverse direction, as recited in Claim 20.

The good optical properties of the invention typically include a surface gloss of the film, measured to DIN 67530 (measurement angle 20°) is ≥ 10, and the luminous transmittance (transparency) of the film, measured to ASTM-D 1003 of ≤ 30%, as recited in Claim 8. In addition, Applicants have determined that, quite unexpectedly, the luminous transmittance of the films of the invention is reduced when the longitudinal stretch ratio, i.e. longitudinal orientation, is increased. More specifically, in advantageous embodiments the luminous transmittance of the film is 15 to 20% lower than the luminous transmittance of comparable films having the same thickness but lower orientation, as recited in Claim 19.

Applicants have further determined that the films of the invention can be recycled without significant detriment to the subsequently formed films. Films of the invention containing up to 50 weight percent of recycle formed from the claimed films can exhibit yellowness values of 20 or less, for films having thicknesses of up to 50 microns, as recited in Claim 17. Films of the invention containing up to 50 weight percent of recycle formed from the claimed films can exhibit yellowness values of 45 or less, for films having thicknesses of from 50 to 250 microns, as recited in Claim 18. The ability to form films

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containing significant amounts of recycled films of the invention is altogether unexpected, given that the claimed films include a number of additives and the like, including barium sulfate, at least one optical brightener and at least one functional coating.

Applicants respectfully submit that Kim does not teach or suggest the claimed invention. Kim is directed to paper substitutes formed from a polyester/polyolefin blend. Kim incorporates up to 40 parts by weight polyolefin resin within his compositions. (Col. 2, lines 61 – 64). Kim incorporates polyolefin to form voids within the polyester. (Col. 4, lines 9 – 14). Although Kim touts the use of polyolefin for other attributes, such voids would be expected to impart opacity to the film. Kim further recommends the inclusion of [heat stabilizers] in his polyester compositions, to counteract the degradation and discoloration imparted by the polyolefin during extrusion and heat aging. (Col. 6, lines 29 – 49).

Kim, considered either alone or in combination with the art of record, does not teach or suggest the claimed invention, which recites a [crystallizable thermoplastic consisting essentially of polyester]. In contrast to the opinion urged in the Office Action, Applicants respectfully submit that polyesters are most certainly not polyolefins. Polyesters and polyolefins are produced from altogether different raw materials using vastly different reaction schemes to form polymers having significantly different properties. Polyesters are generally produced by condensation reactions occurring between multifunctional acids, such as terephthalic acid, and multifunctional alcohols, such as ethylene glycol. Polyolefins are produced via an addition reaction that proceeds across double bonds present within olefinic monomers, such as ethylene and propylene.

The properties exhibited by these two, vastly different polymer families, are significantly different. One exemplary property indicating the significant differences between these two polymer families is their melting temperature, a general indication of a polymer's heat resistance properties. The melt temperature of polyethylene terephthalate, a well known commercial polyester, is about 250 °C. The melt temperature of polyethylene

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and polypropylene, two of the most well known commercial polyolefins, ranges up to about 120 to 180 °C, respectively.

Due to their differing melt points (amongst other rheological differences) polyesters and polyolefins are generally considered to be incompatible when included in the same polymer composition. Hence the formation of micovoids and the like in polyester compositions containing polyolefins, as disclosed in Kim. (Col. 1, lines 35 – 40). The Examiner will also kindly note Kim's further reference to the incompatibility of polyolefins within polyester compositions “[f]urther, in case a polyolefin resin is blended with a polyester, due to the poor heat resistance of the polyolefin, the mechanical properties of the resulting polymer film are apt to deteriorate.” (Col. 1, lines 46 – 50). *- not part of main claim* DR3

Consequently, Applicants respectfully submit that the inclusion of polyolefins would be expected to materially affect the basic and novel characteristics of the resulting crystallizable thermoplastic. Hence Kim's compositions would be excluded from the claimed invention, in which the crystallizable thermoplastic composition consists essentially of polyester, and the claimed invention is patentable in light of Kim on this basis alone. DR5

Kim further does not teach or suggest the claimed combination of crystallizable thermoplastic, barium sulfate and optical brightener which translate into films whose the luminous transmittance is reduced when the longitudinal stretch ratio is increased. Kim thus most certainly does not teach or suggest such films in which luminous transmittance of the film is 15 to 20% lower than the luminous transmittance exhibited by comparable films formed from said crystallizable thermoplastic having the same thickness but lower longitudinal orientation. *→ new matt*

Kim also does not teach or suggest films exhibiting the mechanical properties of the films of the invention. As noted by Kim, the presence of polyolefins is “apt to deteriorate” the mechanical properties of polyester compositions. Hence Kim most

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certainly does not teach or suggest the recited beneficial mechanical properties, including a modulus of elasticity in the machine direction of at least 3300 N/mm<sup>2</sup> and in the transverse direction of greater than 170 N/mm<sup>2</sup>; tear strengths in the machine direction of greater than or equal to 120 N/mm<sup>2</sup> and in the transverse direction of greater than or equal to 170 N/mm<sup>2</sup>; and elongations at break of greater than or equal to 120 % in the machine direction and greater than or equal to 50% in the transverse direction.] Such beneficial properties are particularly surprising in light of the recited absence of heat stabilizers.

Kim further does not teach or suggest the claimed combination of crystallizable thermoplastic, barium sulfate and optical brightener can be recycled back into subsequent films in significant amounts without detriment to the color of the resulting films, as reflected in Claim 16. Kim teaches away from such aspects of the invention. As noted above, the melting temperature of polyolefins is generally significantly lower than that of polyesters. The presence of polyolefins within molten polyester compositions, such as the polyester melts formed during extrusion, gives rise to discoloration. Consequently, Kim most certainly does not teach or suggest films containing up to 50 weight percent of recycled claimed films that exhibit a yellowness values of 20 or less (for films having thicknesses of up to 50 microns) or such films exhibiting yellowness values of 45 or less (for films having thicknesses of from 50 to 250 microns) in the absence of heat stabilizers.

Kim further does not teach or suggest the claimed films that include a functional coating with a thickness of from 5 to 10 nm. Kim, briefly mentioning antistatics, further does not teach or suggest the broad range of functional coatings recited in Claim 10.

Accordingly, Applicants respectfully submit that Kim, considered either alone or in combination with the art of record, does not teach or suggest the claimed invention.

Von Meer does not cure the deficiencies within Kim. Von Meer is directed to waterproof photographic paper substrates coated with a photographic emulsion. (Col. 2,

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lines 24 – 27). The waterproof coating on the photographic paper substrates are formed from unsaturated polymerizable resins, i.e. resins containing at least one double bond. (Col. 2, lines 38 – 41). Exemplary unsaturated resins include vinyl monomers and the like. (Col. 2, lines 48 - 50) Blue dye may further be added to the coating, in an unspecified amount. (Col. 4, lines 19 – 21).

Van Meer, directed to paper substrates, does not teach or suggest the recited film with a thickness of from 10 to 500  $\mu\text{m}$ , particularly not such a film formed from crystallizable thermoplastic consisting essentially of polyester, and most certainly not such a film in which the luminous transmittance of the film is reduced when the longitudinal stretch ratio is increased for a film of the same thickness. In fact, Van Meer teaches away from the recited polyester films by forming his paper coatings from unsaturated resin. Van Meer further does not teach or suggest such films containing blue dye present in the film in an amount ranging from 10 to 10,000 ppm, based on the weight of the crystallizable thermoplastic, as recited in Claim 6.

There would have been no motivation to have combined these references. Applicants respectfully note that merely because the references can be combined is not enough, there must still be a suggestion. MPEP 2143.01 (section citing Mills). Kim is directed to packaging. Van Meer is directed to photographic paper.

However, even if the cited references were combined (which Applicants submit should not be done), the claimed invention would not result. As noted above, Kim is directed to films formed from polyolefin/polyester blends. Von Meer is directed to paper substrates that are coated with a waterproof coating formed from an unsaturated resin, such as a vinyl resin. Consequently, none of the art of record, considered either alone or in combination, teaches or suggests the recited films formed from crystallizable thermoplastic consisting essentially of polyester. Accordingly, Applicants respectfully submit that Claim 6 is likewise patentable in light of the art of record, considered either alone or in combination.

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Nor does Yamazaki teach or suggest the claimed invention. Yamazaki is directed to composite films that include an inner film containing additives disposed between outer coating layers. The coating layers are intended to discourage the additive from exuding to the surface of the film. (Col. 1, lines 43 – 56) The inner film and coating layers are all formed from olefins. (Col. 3, lines 7 – 28). The inner films may contain a laundry list of additives, including weather-proofing agents, and the like. (Col. 3, lines 44 – 46). The composite films may be formed into a split web. (Col. 2, lines 23 – 24).

Yamazaki, directed to olefinic films, does not teach or suggest the recited film formed from crystallizable thermoplastic consisting essentially of polyester, and most certainly not such a film in which the luminous transmittance of the film is reduced when the longitudinal stretch ratio is increased for a film of the same thickness. Yamazaki further does not teach or suggest such films containing precipitated barium sulfate in the film in an amount of from 0.5 to 30% by weight, based on the weight of the crystallizable thermoplastic, and particularly not barium sulfate having an average grain size of from 0.1 to 5  $\mu\text{m}$ , as recited in Claim 7. In fact, Yamazaki teaches away from the recited polyester films by utilizing olefins to form his films and coatings. Consequently, Applicants respectfully submit that Claim 7 is patentable in light of Yamazaki.

There would have been no motivation to have combined Kim and Yamazaki. Kim is directed to packaging. Yamazaki is directed to split films.

However, even if the cited references were combined (which Applicants submit should not be done), the claimed invention would not result. As noted above, Kim is directed to films formed from polyolefin/polyester blends. Yamazaki is directed to olefinic films coated with olefinic resins. Consequently, none of the art of record, considered either alone or in combination, teaches or suggests the recited films formed from crystallizable thermoplastic consisting essentially of polyester. Accordingly, Applicants

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respectfully submit that Claim 7 is likewise patentable in light of the art of record, considered either alone or in combination.

As noted above, Applicants respectfully submit that United States Patent 4,933,043 to Instance was cited in error. Nevertheless, out of an abundance of caution, Applicants respectfully submit that the claimed invention is patentable in light of Instance, considered either alone or in combination with the art of record. Instance is directed to "extended text" labels to be attached to containers. (Col. 1, lines 9 – 22). Instance discloses labels having a particular construction so as to allow a front cover to be pulled away and give access to the interior of a folded strip. (Col. 1, lines 24 – 53). Instance does not provide any details as to the materials used to form his labels.

Applicants thus respectfully submit that Instance, considered either alone or in combination with the art of record, does not teach or suggest the recited opaque, white films comprising a crystallizable thermoplastic consisting essentially of polyester, barium sulfate, and at least one optical brightener, and certainly not such films further including at least one functional coating.

Accordingly, based on the foregoing, Applicants respectfully submit that Claims 1 through 11, 16 and new Claims 17 through 20 are patentable in light of the art of record, considered either alone or in combination.

### CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 11, 16 and new Claims 17 through 20 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

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It is not believed that fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional fees are necessary to allow consideration of this paper, the fees are hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

*Klaus Schweitzer*

Klaus Schweitzer

See attached Limited Recognition  
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